

NASA TECH BRIEF

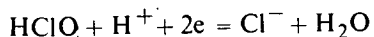
Manned Spacecraft Center



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Salt Stabilizer for Preventing Chlorine Depletion and Increasing Shelf-Life of Potable Water: A Concept

A proposed concept, based on the law of mass action, uses the addition of salt to increase the chlorine ions produced in sodium hypochlorite solutions, thereby increasing solution shelf-life. Normally, the germicidal effectiveness of sodium hypochlorite for controlling microbial content in potable water supplies decreases as a function of shelf-life, with the decomposition occurring according to the equation:



Attempts to reduce the pH so as to increase the concentration of hypochlorous acid (HClO), i.e., its geometrical effectiveness, drastically reduce the long-term stability.

However, in the proposed concept, a chlorine solution is prepared with approximately 5000 parts per million (ppm) chlorine, using an analytical reagent grade solution of sodium hypochlorite (NaOCl) and distilled water. It is thoroughly mixed and strained through a 0.22 micron filter, and then allowed to stabilize for at least 2 hours. Finally, the solution is adjusted for a chlorine concentration of 5000 ppm.

Detailed procedures have been developed to ensure that the ampules containing the solution are properly filled, sealed and bonded, and are stored in the proper environmental conditions.

Notes:

1. This technique may have wide appeal due to its low cost; however, the usefulness will ultimately be determined by the acceptability of salt in the product undergoing long shelf-life.
2. Requests for further information may be directed to:

Technology Utilization Officer
Manned Spacecraft Center, Code JM7
Houston, Texas 77058
Reference: TSP71-10097

Patent status:

No patent action is contemplated by NASA.

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